Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_

**Unit 7, Part 3 (Sex-Linked Traits and Dihybrid Crosses) – Learning Targets**

Pre-AP Biology, Mrs. Krouse

**What will I be able to do when I’ve finished this lesson?**

* I can use Punnett squares for crosses involving sex-linked traits.
* I can use Punnett squares for dihybrid crosses.

**What must I learn so I can do this?**

To be able to do this, I must be able to…

1. Explain how autosomes and sex chromosomes are different from one another.
2. Identify the types of sex-chromosomes found in males and females.
3. Define the following terms: sex-linked traits, X-linked traits, and Y-linked traits.
4. Identify the sex of a person and their phenotype for a particular trait based on a given sex-linked genotype

(ex: XHXh)

1. Identify the sex (male or female) that is most likely to show an X-linked recessive trait, and explain why.
2. Identify the genotypes of the male and female parents in a sex-linked Punnett square word problem.
3. Set up the sex-linked Punnett square using the genotypes from #6. In other words, I must be able to determine what should go on the top and left side of my Punnett square.
4. Fill in the offspring genotypes in the boxes of the sex-linked Punnett square I set up in #7.
5. Identify genotype and phenotype frequencies in the offspring by analyzing the sex-linked Punnett square I completed in #8. I must be able to express these frequencies as fractions, percentages, or ratios.
6. Explain the difference between a monohybrid and dihybrid cross.
7. Identify the genotypes of the male and female parents in a dihybrid Punnett square word problem.
8. Set up the dihybrid Punnett square by using the FOIL method on the genotypes from #11. In other words, I must be able to determine what should go on the top and left side of my Punnett square.
9. Fill in the offspring genotypes in the boxes of the dihybrid Punnett square I set up in #12.
10. Identify genotype and phenotype frequencies in the offspring by analyzing the dihybrid Punnett square I completed in #13. I must be able to express these frequencies as fractions, percentages, or ratios.

*Note: Sometimes, you will only be asked to find phenotype frequencies because the genotype frequencies are too complicated (too many genotypes, too little time!)*

1. Describe the offspring phenotype frequencies that result from a cross of two individuals that are heterozygous for two traits (ex: AaBb x AaBb). These offspring phenotype frequencies will always be as follows…

-9/16 of the offspring will display dominant phenotypes for both traits.

-3/16 of the offspring will display the dominant phenotype for the first trait and the recessive phenotype for the second trait.

-3/16 of the offspring will display the recessive phenotype for the first trait and the dominant phenotype for the second trait.

-1/16 of the offspring will display the recessive phenotype for both traits.